

What is claimed is:

1. A rear projection screen for allowing a projected light beam incident thereon to pass therethrough to a viewer side, comprising:

5 a horizontal lenticular lens plate;

 a Fresnel lens sheet including a first resin substrate, and a Fresnel lens formed on a first surface of said first resin substrate and serving to concentrate said projected light beam on said viewer side, said Fresnel lens sheet being located on an incident side of said horizontal lenticular lens plate, said incident side being the side from which said
10 projected light beam is incident on said rear projection screen; and

 a securing fixture for fixing said Fresnel lens sheet and said horizontal lenticular lens plate together,

 said horizontal lenticular lens plate including

 a substrate member in plate-like form made of a highly rigid, light-transmittable
15 material, and

 a horizontal lenticular lens sheet including a second resin substrate, and a horizontal lenticular lens formed on a first surface of said second resin substrate and serving to horizontally refract incident light, said horizontal lenticular lens sheet being disposed in superposed relation with said substrate member.

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2. The rear projection screen according to claim 1, wherein

 said Fresnel lens includes a plurality of refraction and total reflection structures including concentric refraction Fresnel lens portions and concentric total reflection Fresnel lens portions, respectively;

25 each of said refraction Fresnel lens portions includes a combination of a

refraction slope for refracting said projected light beam, and an inoperative facet located adjacent to said refraction slope; and

each of said total reflection Fresnel lens portions includes a combination of a transparent slope allowing said projected light beam to pass through, and a total reflection
5 slope for totally reflecting said projected light beam having passed through said transparent slope.

3. The rear projection screen according to claim 1, wherein
said Fresnel lens includes a plurality of concentric total reflection Fresnel lens
10 portions; and

each of said total reflection Fresnel lens portions includes a combination of a transparent slope allowing said projected light beam to pass through, and a total reflection slope for totally reflecting said projected light beam having passed through said transparent slope.

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4. The rear projection screen according to claim 1, wherein
said Fresnel lens includes a plurality of concentric refraction Fresnel lens portions; and

each of said refraction Fresnel lens portions includes a combination of a
20 refraction slope for refracting said projected light beam, and an inoperative facet located adjacent to said refraction slope.

5. The rear projection screen according to claim 1, wherein
said Fresnel lens is located on said incident side of said Fresnel lens sheet; and
25 a vertical lenticular lens serving to vertically refract incident light is formed on

said viewer side of said Fresnel lens sheet.

6. The rear projection screen according to claim 1, wherein
said substrate member is made of glass.

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7. The rear projection screen according to claim 1, wherein
said substrate member is made of a highly rigid resin.

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8. The rear projection screen according to claim 1, wherein
said securing fixture is made of metal.

9. The rear projection screen according to claim 1, wherein
said securing fixture is made of a highly rigid resin.

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10. The rear projection screen according to claim 1, wherein
said securing fixture and said resin substrate of said Fresnel lens sheet are made
of materials having coefficients of linear expansion close to each other.

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11. The rear projection screen according to claim 1, wherein
a light diffusing material is mixed in said substrate member of said horizontal
lenticular lens plate.

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12. The rear projection screen according to claim 1, wherein
a light diffusing material is mixed in a bonding layer for bonding together said
substrate member and said horizontal lenticular lens sheet of said horizontal lenticular

lens plate.

13. The rear projection screen according to claim 1, wherein
said horizontal lenticular lens is located on said incident side of said horizontal
5 lenticular lens plate; and

a plurality of black light-blocking layers in the form of stripes are provided on a
flat surface of said horizontal lenticular lens plate facing toward said viewer side, said
plurality of black light-blocking layers being in corresponding relation to a plurality of
lens portions, respectively, of said horizontal lenticular lens, said plurality of black
10 light-blocking layers being located in other than a region through which light correctly
collected by said lens portions passes.

14. The rear projection screen according to claim 1, wherein
a light diffusing material is mixed in said Fresnel lens sheet.

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15. The rear projection screen according to claim 1, wherein
at least one surface of said horizontal lenticular lens plate is subjected to at least
one of a hard coating process, an antistatic process, and an anti-reflection process.

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16. The rear projection screen according to claim 1, wherein
at least one surface of said Fresnel lens sheet is subjected to an anti-reflection
process.

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17. A projection display apparatus comprising
a rear projection screen as recited in claim 1.